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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,831	12/30/2003	Kevin M. Conley	SNDK.247US0	9380

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EXAMINER
WALTER, CRAIG E

ART UNIT	PAPER NUMBER
2188	

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/749,831	CONLEY ET AL.
	Examiner	Art Unit	
	Craig E. Walter	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 September 2006</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>2-4 and 26-30</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) <u>2-4 and 26-30</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>05 September 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1.   Claims 2-4 and 26-30 are pending in the Application.

Claims 2 and 3 have been amended.

Claims 1 and 5-25 have been cancelled.

Claims 2-4, 26-30 are rejected.

Response to Amendment

2.   Applicant's amendments and arguments filed on 5 September 2006 in response

to the office action mailed on 4 April 2006 have been fully considered, but they are not

persuasive. Therefore, the rejections made in the previous office action are maintained,

and restated below, with changes as needed to address the amendments.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 2-4, 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated

by Conley (US PG Publication 2002/0099904 A1).

As for claim 2, Conley teaches a method of writing data into a non-volatile memory system of a type having blocks of memory cells that are simultaneously erasable and which individually store a given number of host units of data, comprising:

responding to host commands to write units of data having non-sequential logical addresses by writing the data with sequential physical addresses into a first designated block (or a number of sequential logical addresses less than a fraction of said given number as in claim 28), and responding to host commands to write units of data having sequential logical addresses equal to or in excess of a given proportion (or the fraction of claim 28) of said given number by writing the data into a second designated block (paragraph 0062, all lines – the storage capacity of a block is determined as to indicate if the amount of data to be stored is equal to or less than/greater than the capacity of the block. If the capacity is sufficient, the system will try to put the data in a partially written block. If not, the system will address a new block and store the within this block, or across multiple blocks based on the data size – see also Fig. 14. Figs. 8 and 9 further illustrate Conley as physically storing data in a sequential manner (i.e. contiguous pages)). Also note Conley's system is designed to account for storing either sequential logically addressed data, or non-sequentially logically addressed data, as described in paragraph 0050, all lines. In other words, if the given amount of host data is smaller than the area remaining in a partially written block, it will be stored in the first block (regardless if the data has sequential or non-sequential logical address). If the data is excess of a proportion of that given amount (amount of memory available in the

partial block), the data will be written to the second, newly allocated block, again irrespective of the sequence of the logical addresses.

As for claim 3, Conley teaches writing data to the first designated block as including writing a number of host units of data into the first designated block having sequential logical addresses less than the given proportion of said given number (referring again to paragraph 0062, the given number is based on the memory available within the partial block).

As for claims 4 and 29, Conley teaches the non-volatile memory cells as being organized into multiple sub-arrays, and said blocks of memory cells include memory cells of two or more of the sub-arrays (paragraph 0062, all lines, if the amount of host data does not exceed the size of one full block the data, two different sets of host writes can be stored uniquely in one block (i.e. each write is a unique sub-array of data within each block). Also note Conley specifically teaches his memory system as including sub-arrays in paragraph 0010, lines 1-7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 26, 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conley (US PG Publication 2002/0099904 A1) as applied to claims 1 and 28

above, and in further view of Kulkarni et al. (Us PG Publication 2002/0034105 A1),
hereinafter Kulkarni.

As for claims 26, 27, and 30 though Conley teaches all the limitations of claims 1
and 28, he fails to specifically teach the given proportion as being set within a range of
25-75 percent of the given number as recited by Applicant in these claims.

Kulkarni however teaches a system and method for incrementally updating an
image in flash memory wherein new flash images are built incrementally until a memory
block is of sufficient size to be written to the flash memory – paragraph 0013, all lines.
More specifically, Kulkarni teaches writing memory to a first memory block (i.e. RAM),
until the memory is half full (i.e. 50 percent), and subsequently writing the data to a
second block in the flash memory (i.e. predetermined limit set at 50% allocation) –
paragraph 0014, all lines.

It would have been obvious to one of ordinary skill in the art at the time of the
invention for Conley to further include Kulkarni's system for updating an image in flash
memory into his own system for partial block data programming in a non-volatile
memory. By doing so, Conley would have a more efficient memory system capable for
reducing the number of sections transmitted during the writing process, while
persevering sections that are used to construct other section as taught by Kulkarni in
paragraph 0011, all lines. Additionally, Conley could benefit from Kulkarni's system by
preventing the problems related to data overwrite as described by Kulkarni in paragraph
0012, all lines.

Response to Arguments

5.   Applicant's amendments and arguments with respect to the claims rejected

under the 35 USC § 102(b) have been fully considered, but they are not persuasive (i.e.

claims 2-4, 28 and 29). Applicant's arguments with respect to newly added claims 26,

27, and 30 are rendered moot in view of the new grounds of rejections necessitated by

Applicant's amendment.

        With respect to the rejections set forth under 35 USC § 102(b), Applicant asserts

under the heading "Claim Rejections Under 35 U.S.C. § 102" that "Conley is not seen to

suggest the specific claimed critical for writing units of data into the second block".

Applicant further contends that "The claimed criteria is whether the number of data units

with sequential logical addresses is equal to or in excess of a "given proportion" of the

number of data units that a block can store".   This argument however is not persuasive.

More specifically, Conley teaches a system which determines if data should be written

to a partially written block (i.e. first block), or a new block or blocks (i.e. second block)

based on the amount of capacity remaining in the first, partially written block –

paragraph 0062, all lines. This point is clearly illustrated in the flow chart provided in

Fig. 14. The system determines whether to write data to a first (partially written) or

second (allocate a new block) based on the data size to be written, and capacity of the

first block. If the given proportion (or fractional) amount (amount of memory remaining

in the first block to be used for the data) is less than the size of the data, the data will be

written to the first block. If the data exceeds the remaining capacity, a new block will be

written.

Applicant's argument with respect to claims 3 and 4 are not persuasive, as Conley clearly teaches writing data to the first block if data to be written is less than the given proportion (remaining capacity) of the given amount of memory space.

Applicant's arguments with respect to newly added claims 26, 27and 30 are rendered moot in view of the new grounds of rejection set forth *supra*.

Applicant's arguments with respect to newly added claim 28 are not persuasive for the same reasons as claim 2, for Applicant has simply replaced "proportion" with "a fraction". Since a "fraction" and a "proportion" can be broadly interrupted as being similar in scope in light of Applicant's specification (please see MPEP § 2111), this argument is not persuasive.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
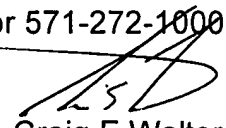
7.   A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig E. Walter whose telephone number is (571) 272-8154. The examiner can normally be reached on 8:30a - 5:00p M-F.

9.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung S. Sough can be reached on (571) 272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10.   Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Craig E Walter
Examiner
Art Unit 2188

CEW

HYUNG SOUGH
SUPERVISORY PATENT EXAMINER